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- 1. Composition comprising Me, Si₃N₄, and a sintering aid wherein Me is a member selected from the group consisting of Groups IVB, VB, VIB and VIII of the periodic table, said Me being present in an amount of between about 40-80 atomic percent, said Si₃N₄ being present in an amount of between about 60 and 20 atomic percent, with the combined atomic percent of said Me and Si₃N₄ being 100 atomic percent; said sintering aid being chosen from the group of MgO and SiO and being present in an amount of between about 0.05-30 weight percent based on the weight of said Si₃N₄.
- 2. Composition as recited in claim 1 wherein Me is selected from W, Ta, Nb, Zr, Hf, Pt, Ir, Mo and Ru.
- 3. Composition as recited in claim 2 wherein said sintering aid is MgO and Me is W.
- 4. Sputter target comprising Me, Si₃N₄ and a sintering aid wherein Me is a member selected from the group consisting of groups IVB, VB, VIB and VIII of the periodic table, said Me being present in an amount of between about 40-80 atomic percent, said Si₃N₄ being present in an amount of between about 60 and 20 atomic percent, with the combined atomic percent of said Me and Si₃N₄ being 100 atomic percent; said sintering aid being chosen from the group of MgO and SiO and being present in an amount of between about 0.05-30 weight percent based on the weight of said Si₃N₄.
- 5. Sputter target as recited in claim 4 wherein Me is selected from W, Ta, Nb, Zr, Hf, Pt, Ir, Mo and Ru.
- 6. Sputter target as recited in claim 5 wherein said sintering aid is MgO and Me is W.
- 7. Sputter target comprising W, Si₃N₄ and MgO present as a sintering aid, said W being present in an amount of between about 40-80 atomic percent, said Si₃N₄

being present in an amount of between about 60 and 20 atomic percent, with the combined atomic percent of said W and Si₃N₄ being 100 atomic percent; said MgO being present in an amount of between 0.05-30 weight percent based on the weight of said Si₃N₄.

- 8. Sputter target as recited in claim 7 having a density of at least 95% of theoretical density.
- 9. Sputter target as recited in claim 8 wherein W is present in an atomic amount of about 60 percent, said Si₃N₄ is present in an amount of about 40 atomic percent and said MgO is present in an amount of about 0.05-6 weight percent based on the weight of said Si₃N₄.
- 10. Sputter target as recited in claim 9 having a bulk density of between about 6.9 and 7.3 g/cc.
- 11. Sputter target as recited in claim 9 having a purity greater than 99.9%.
- 12. Sputter target as recited in claim 9 having a purity greater than 99.99%.
- 13. Sputter target as recited in claim 9 having a Nitrogen content of between about 12.3-13.3 weight percent and a Silicon content of between about 19 and 21 weight percent silicon.
- 14. Method of making a sputter target comprising:
- a) providing an Me powder comprising a member selected from groups IVB, VB, VIB and VIII of the periodic table;
 - b) providing Si₃N₄ powder;
 - c) providing a sintering aid selected from MgO and SiO;
- d) blending said Me powder, Si₃N₄ powder and sintering aid to form a blend;

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- e) pressure consolidating said blend under heated conditions for a time sufficient to form a consolidated blend having an actual density of greater than 95% of the theoretical density;
- 15. Method as recited in claim 14 further comprising machining said pressure consolidated blend from said step (e) to final desired shape.
- 16. Method as recited in claim 14 wherein said blend comprises from about 40 about 80 atomic percent Me, about 60 about 20 atomic percent Si₃N₄ with said the atomic percent of said Si₃N₄ and said Me equaling about 100 atomic percent, said sintering aid being MgO present in an amount of between about 0.05-6 weight percent based on the weight of said Si₃N₄.
- 17. Method as recited in claim 16 wherein Me is W.
- 18. Method as recited in claim 16 further comprising conducting said pressure consolidating step (e) in an inert gaseous atmosphere.
- 19. Method as recited in claim 18 wherein said pressure is greater than about 1 atmosphere.
- 20. Method as recited in claim 19 wherein pressure consolidation is conducted at temperatures of about 900°C-1700°C.